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Yamamura, Eiji

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Long term impact of parents' smoking on their children's health: Childhood circumstances and adult outcomes

Eiji Yamamura

*Department of Economics, Seinan Gakuin University, 6-2-92 Sawaraku Nishijin,
Fukuoka 814-8511, Japan*

Abstract

I examined how childhood circumstances of parents' smoking and drinking behaviors influenced their children's health status in later life. During the initial survey, I asked the respondents about their parents' unhealthy behaviors when they were in primary school. Using this data, I conducted estimations to find out whether even after controlling respondents' drinking and smoking behaviors, their health status was lower, if during their childhood, their mothers had smoked. On the other hand, similar detrimental effects were not observed for mothers' drinking as well as fathers' smoking and drinking behaviors.

JEL classification: J13; J16, I 12.

Key words: Smoking behavior; Drinking behavior; Parents' effect; Childhood circumstance; Adult outcome; Externality.

1. Introduction.

In recent times, a hot issue for researchers is determining the extent to which early childhood (postnatal) environment can have life-long consequences (Almond et al., 2018). Passive smoking has a negative influence on the health of people, especially children, who are in close proximity to smokers (Frijters et al., 2011; Wehby et al., 2011). Various policies to reduce cigarette consumption have had a sizable impact on improving children's health (Bharadwaj et al., 2014; Simon, 2016). Improving knowledge levels on how passive smoking can have adverse birth outcomes on their babies are thought to encourage not only mothers but also fathers to reduce their cigarette consumption or stop smoking altogether (Blackburn et al., 2005; Yamamura and Tsutusi, 2019).

Chronic health conditions among older men depend on their natal circumstances (Costa, 2000). Besides smoking, it is also important to consider the effect of parents' drinking behaviors. Changes in the minimum legal drinking age improve birth outcomes (Barreca and Page, 2015). It is, therefore, worth investigating how unhealthy parental behaviors such as smoking and drinking influence their children's health outcomes in later life. Further, mothers are thought to spend a longer time with their children than fathers. Smoking has a greater influence through passive smoking as compared to drinking behavior. It is plausible that effects of unhealthy parental behaviors like smoking or drinking vary according to the genders of parents. This paper has, therefore, used originally collected individual-level data to compare the effects of mothers' smoking on children's health status in adulthood. with that of fathers' smoking as well as both parents' drinking behaviors

2. Data and Model

For collecting original data to scrutinize childhood circumstances and subsequent adult outcomes, I commissioned the Nikkei Research Company to conduct a web survey in October 2018. Since our aim was to collect over 7,000 observations, the survey was active until the requisite observations had been collected. While 7,148 respondents returned their filled in questionnaires; the actual sample size used for estimation got reduced to slightly less than 7,000 because some respondents did not answer the questions related to this paper's estimation. The respondents were Japanese adults aged 20–65 years. The sample's demographic composition was similar to that of the 2015 Japan census. For this paper's surveys, I elicited respondents to recall frequencies of their parents' smoking and drinking behaviors when they were in elementary school. In addition, I also asked them to quantify their own smoking and drinking consumption, when the survey was conducted. The basic statistics along with the definition of key variables are presented in Table 1. In addition, various questions were included to control the various factors in the estimations.

To assess the influence of respondents' childhood circumstances on their current health status, the estimated function took the following form:

$$\text{HEALTH}_i = \alpha_0 + \alpha_1 \text{FATHER SMOK}_i + \alpha_2 \text{MOTHER SMOK}_i + \alpha_3 \text{FATHER DRINK}_i + \alpha_4 \text{FATHER DRINK}_i + \alpha_5 \text{SMOKE}_i + \alpha_6 \text{DRINK}_i + X'_i B + u_i.$$

where HEALTH_i represented the dependent variables for individuals; and i and α represented the marginal effects of these independent variables. Various control variables were also included and expressed as vector X'^1 .

¹ Control variables are respondents' ages and its square term, household income,

“FATHER SMOK” and “MOTHER SMOK” were the key independent variables to test the impact of smoking behaviors of parents, when the respondents were children. Similarly, “FATHER DRINK” and “MOTHER DRINK” were included for testing the effect of the drinking behavior of respondents’ parents. In addition, for disentangling the effects of childhood circumstances from the current ones, I also included variables for capturing respondents’ smoking and drinking behaviors when the survey was conducted; to enable a comparison of the long-term effects of parents’ behaviors on the respondents’ unhealthy behaviors.

3. Results

Table 2 shows a negative value for “MOTHER SMOK” which indicates its statistical significance at the 1% level in all results; while the negative value for “FATHER SMOK” changed depending on the specification but did not show a statistical significance. On the other hand, neither “FATHER DRINK” nor “MOTHER DRINK” showed any statistical significance. This revealed that only mothers’ smoking behavior had a long-term negative influence on her children’s health status in adulthood. Although, both parents’ smoking and drinking were thought to be harmful for their children’s health; yet, only the negative effects of mothers’ smoking persisted even after her children became adults.

With regard to respondents’ unhealthy behavior, “SMOK” had a negative value and statistical significance, while “DRINK” did not reveal a negative value or statistical significance. Even after controlling, not only, parents’ behaviors but also, respondents’ personal smoking and drinking behaviors; we observed long-term negative effects of

marital status, job status dummies, educational background dummies, residential prefecture dummies.

mothers' smoking that were robust to alternative specifications. I therefore, maintain that damage from mothers' smoking during childhood persists even after children become adults.

4. Conclusions

A major finding is that mothers' smoking behavior has a long-term detrimental effect on their children's health status in later life. However, this negative effect is not observed for mothers' drinking as well as fathers' smoking and drinking behaviors. From these findings, I contend that mothers are generally thought to spend more time on childrearing than fathers, and are, therefore, in more frequent contact with their children. Inevitably, children are likely to suffer from their mothers' smoking behaviors. Further, the effects persisted even after the children became adults.

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Table 1. Definitions of variables and its mean values

	Definition	Mean	S.D
HEALTH	Subjective evaluation of health status; 1(Very bad)- 5(Very good)	3.52	1.14
FATHER SMOK	Frequencies of respondent father's smoking behavior when respondents were elementary school student. From 0 (Never smoking) to 7 (Everyday).	2.98	3.37
MOTHER SMOK	Frequencies of respondent mother's smoking behavior when respondents were elementary school student. Form 0 (Never smoking) to 7 (Everyday).	0.53	1.76
FATHER DRINK	Frequencies of respondent father's drinking behavior when respondents were elementary school student. From 0 (Never smoking) to 7 (Everyday).	3.27	3.01
MOTHER DRINK	Frequencies of respondent mother's drinking behavior when respondents were elementary school student. Form 0 (Never smoking) to 7 (Everyday).	0.94	1.82
SMOK	Number of cigarettes respondent smoked per day. From 0 (not at all) to 41 (equal or more than 41 cigarettes).	1.79	5.25
DRINK	Number of cigarettes respondent smoked per day. From 0 (not at all) to 5 (equal or more than 5 bottle (350 ml) of beers).	0.55	0.98
MALE	Dummy which has 1 if respondent is male, otherwise 0.	0.50	----

Table 2. Regression estimation: Dependent variable: Health

	(1)	(2)	(3)	(4)	(5)	(6)
FATHER SMOK	0.03 (0.58)	−0.03 (0.58)	−0.14 (0.53)	−0.18 (0.55)		
MOTHER SMOK	−1.86*** (0.67)	−2.18*** (0.67)	−1.87*** (0.65)	−2.10*** (0.66)		
FATHER DRINK	−0.59 (0.53)	−0.50 (0.52)			−0.63 (0.47)	−0.56 (0.47)
MOTHER DRINK	0.13 (0.81)	0.20 (0.87)			−0.32 (0.80)	0.31 (0.86)
SMOK	−0.80** (0.31)		−0.79** (0.31)		−0.80** (0.31)	
DRINK	2.61 (2.08)		2.41 (2.17)		2.61 (2.08)	
MALE	−0.19*** (0.03)	−0.19*** (0.04)	−0.19*** (0.03)	−0.19*** (0.04)	−0.19*** (0.03)	−0.19*** (0.04)
R-square	0.07	0.07	0.07	0.07	0.07	0.07
Obs	6,936	6,952	6,936	6,952	6,936	6,952

Note: Numbers without parentheses are coefficients of each variable. Numbers in parentheses are robust standard errors clustered at residential prefecture. For convenience of interpretation, besides MALE, values of coefficients and standard errors are multiplied by 100. ** and *** indicate significance at the 5% and 1% levels, respectively. Various control variables are included; Respondents' ages and its square term, household income, marital status, job status dummies, educational background dummies, number of children.